



## Medical History

# California's "First" Medical Book

## David Wooster's *Diseases of the Heart* (1867)

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DAVID WOOSTER<sup>15</sup> was born 25 June 1825, in Jasper, New York. He was named after a grand-uncle who was a general of the Revolutionary Army. While a medical student in Cleveland, he volunteered in the Mexican War, after which he returned to school and obtained his M.D. in 1849. He settled in Michigan, married, and practiced medicine.

The discovery of gold in 1848 put a madness on the nation that did not exclude the sedate professions. Physicians in such numbers emigrated to the West that California in 1858 could boast one doctor to every 147 residents. In New York, it was one to 610, in Ohio one to 465, in Maine one to every 884 persons.<sup>12</sup> One of the 1,500 doctors who followed the gold rush was 25-year-old Dr. David Wooster. After he crossed the plains to California in 1850, he settled near the Yuba River where he mined and practiced medicine. Three years later, his wife sailed around the Horn to join him. Sated with his mining adventure, Dr. Wooster established a medical practice in San Francisco in 1856, where gold nuggets had changed a village into an instant metropolis.

San Francisco at this time was sans a medical

periodical.<sup>5</sup> The *San Francisco Medical Journal* had begun in January 1856, but had died after a single issue. The *California State Journal of Medicine* had succumbed in April 1857. Aglow with editorial evangelism, Dr. Wooster founded, with Dr. David Trask, and edited the *Pacific Medical and Surgical Journal*, which prospered from 1858 to 1917. He sat mightily in his editorial chair for four years. In the third number of the journal, he denounced a report by a Dr. C. before the state society meeting of the first cesarean section performed in California (and one of the few in the world where the mother survived). Wooster had been called in consultation and had consented to assist at the operation. "There is no doubt that an immense mistake was made in this case," blurted Wooster.<sup>5</sup> There was also no doubt in San Francisco that Dr. C. was Dr. Elias S. Cooper, who that year had organized the first medical college on the Pacific Coast. A year later, he started up his own journal, the *San Francisco Medical Press*, in which he called his defamer "a medical Judas." The label seemed apt, since in the unsuccessful malpractice suit the patient had brought against him, Cooper found Wooster testifying against him. Later he sued Wooster on grounds of perjury; lack of evidence resulted in a demurrer.<sup>3</sup>

The first publication on diphtheria<sup>17</sup> in the United States was a pamphlet printed for general medical use by Dr. Wooster two years after the

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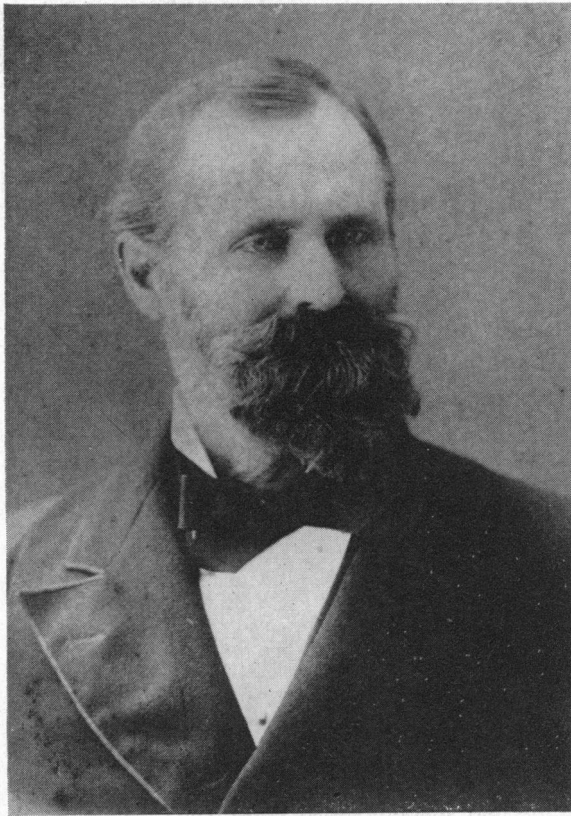


Figure 1.—David Wooster, M.D.

virulent epidemic of 1856 in the San Francisco Bay area.

Wooster's adventurous impulse soon overcame the advantages of a successful medical practice. In 1861, after enlisting in the U.S. Army, he became a major in the California Volunteers.<sup>13</sup> This organization of 1,800 soldiers was stationed at Fort Yuma, Arizona, to release regular troops for battle. Wooster, an uxorious man, was accompanied by his wife and his daughter Jean. One of his duties was to attend the nearby Indians. A certain Indian chief, fascinated with little Jean, enticed her to visit his tribe. The child's sudden disappearance from the fort created a panic which ceased only some days later when the chief returned the little girl. He explained that he had taken her with him to show her off to his family.

In 1863, Wooster resigned from the Army and returned to San Francisco. He was soon appointed U.S. Appraiser of Drugs and surgeon at the Marine Hospital.<sup>1</sup> He contributed frequently to the local medical journals.

### A Malpractice Suit in 1872

For those who believe malpractice suits are a

recent invention, let it be noted that Wooster was sued<sup>3</sup> for \$30,000 in 1872 by one John Walter because of a poor result after a fracture. Wooster defended himself by showing records proving he was called in by Dr. Daniel Todd after two days and that the case was a difficult one. Wooster listed 67 visits; fee, \$300.00. The jury verdict was for the plaintiff and gave damages of \$1,100. Five years later, Wooster took to court Timothy Page for failure to pay a bill of \$1,000 for treatment of his child's morbus coxarius. The defendant countered with a charge of negligence. The jury voted malpractice was not proved, and that Wooster be awarded his fee of \$1,000 plus \$365.50 in costs.

In 1862 and in 1880, Wooster<sup>21</sup> treated two patients with hyperthyroidism, and was the first in California to write on exophthalmic goiter. Consistent with the times, he considered the disease a disorder of the nerve ganglion with only incidental involvement of the thyroid gland.

For Bret Harte's *Overland Monthly* in 1871 Wooster<sup>20</sup> wrote "A Ride With The Apaches," prepared from the unpublished narrative of Jose Mendivil, a captive, who after seven years, stayed with the tribe. It is a description of the annual grand visit of the Apaches to the Zuñi tribe, "for the purpose of trade and talk . . . occasionally to get wives, or see a sweetheart secretly."

For some time Wooster suffered from heart disease<sup>11</sup> and on the morning of 20 September 1894 he warned his wife of his imminent death. That night, he died. The nature of his terminal illness and the accuracy of his prognostication call special attention to the title of his first book, *Diseases of the Heart, Their Diagnosis and Treatment*.\*

In a note printed in the program of a meeting of the Walter Jarvis Barlow Society a little more than a year ago, this book was spoken of as the first medical book published in California. The claim to primacy stems from a review that appeared in the *Pacific Medical and Surgical Journal*, California's only medical journal of the time. The reviewer wrote: "In our September number we noticed this work, which is, we believe, the first Medical Book issued from the California press."<sup>1</sup> In answer to inquiry in 1963, the California Historical Society<sup>2</sup> said that the question was re-

\*A second book by Wooster, *Hip Joint Diseases*, appeared in 1876, according to his obituary in the *San Francisco Morning Call*, but it is not listed in the Surgeon General's Index Catalogue.

# DISEASES OF THE HEART:

THEIR

## DIAGNOSIS AND TREATMENT.

BY

DAVID WOOSTER, M. D.

MEMBER OF THE ROYAL ACADEMY OF MEDICINE AND SURGERY OF TURIN,  
Assistant Surgeon in the "Mexican War," Surgeon (Major) in  
the late Civil War, Author of "Diphtheria and Congen-  
ital Asphyxia" (1859), Founder and former  
Editor of "The Pacific Medical and  
Surgical Journal," etc., etc.

—♦♦♦—

SAN FRANCISCO:

H. H. BANCROFT AND COMPANY.

1867.

Figure 2.—Title page of California's "first" medical book.

ferred to Dr. Ludwig Emge, as an appropriate authority, and that he "has been unable to find any record of an earlier book in California on the subject."

### Pretenders to Primacy

The claim that Wooster's *Diseases of the Heart* was first is not at all disturbed by two other possible pretenders. Dr. Roy Popkin has graciously given to the author a copy of Dr. L. J. Jordan's<sup>9</sup> *The Philosophy of Marriage, Being Four Important Lectures on the Functions and Disorders of the Nervous System and Reproductive Organs*, published in San Francisco in 1865. The introduction declares this the 47th (sic) edition. It is a vile tract against self-abuse, is full of case reports about lost manhood designed to frighten the young, and concludes with a pitch for treatment by correspondence at a fee of five dollars. The Surgeon Gen-

eral's *Index Catalogue* does not list it.

As to the other possible claim: a Los Angeleno of early days, one William Money,<sup>10</sup> known variously as Dr. Money, Professor Money and Bishop Money, in obviously planted newspaper articles referred to his forthcoming book *The California Medical Instructor* to be published in 1854, which he said would contain a list of 5,000 patients he had treated in 15 years, with only four deaths. The book is not listed in the Surgeon General's *Index Catalogue*; Dr. George Kress<sup>13</sup> expressed doubt it was ever printed, and W. W. Robinson,<sup>14</sup> Los Angeles' historian laureate, was of the same opinion. Therefore it appears historically founded that Wooster's book was indeed the first medical text in English published in California.\*

Dr. Wooster's *Diseases of the Heart, Their Diagnosis and Treatment*<sup>18</sup> is a small pocket-sized book of 209 pages, a third as thick as *Lolita*. It was published in September 1867 by H. H. Bancroft, the noted San Francisco bookseller and historian. The book is not an original work; it is best described as a compendium. Writes the author in the preface, "I need not tell my intelligent readers that this treatise is merely an abstract; but it is hoped that they will find it what the author designed it to be, a careful and conscientious epitome of the knowledge now possessed by the profession on the subject of which it treats."

Wooster had been practicing medicine in California for eleven years when he wrote his book. He was busy — physician, editor, medical politician, and avid reader. "This work has been prepared during intervals of daily toil," he explains. He "freely consulted Walshe, Hope, Latham, Stokes, Bennett, Markham, Skoda, Rokitansky, Radcliffe, Brown-Sequard, See, Virchow, Claude Bernard, Flint, Piorry, and numerous other authors; also current medical literature of standard authority."

Why did Wooster compile this compendium? It is not unreasonable to conjecture that originally he made notes as he read his dozen favorite books on

\* John B. de C. M. Saunders, M.D., has kindly pointed out to the author that "the first medical book to be published and printed in California is the anonymous *Botica General de los Remedios Experimentados* issued at Sonora in 1838 as one of the 12 books of the Zamorano press. This work is of the greatest rarity. The only copies known in California are at the Huntington Library at Pasadena and in the hands of the heirs to Mr. Leo Carrillo of Los Angeles. The copy formerly in the Bancroft Library at Berkeley was stolen. Two other copies outside of California are known (Boston and Streeter). . . . Although the *Botica* is of little consequence, nonetheless it is California's first medical book to appear in print. Of course, the first medical work to be published in California prior to the presence of a printing press, and hence not printed but circulated in the form of manuscript copies, is Father Prefect Sarriá's *Operacion Caesarea* written in 1830. Sarriá's work, a lengthy treatise on cesarean section, is the first published work *in sensu strictu*, and more significant in content than the *Botica*."

heart disease. His experience as founder and editor of the only medical journal of the time might have influenced him to take his manuscript to H. H. Bancroft, his bookseller, who was also a publisher. Is this groundless speculation? Was there a need for this book?

### Wooster's Times in Journalism

What was the medical panorama of San Francisco like a century ago?<sup>5</sup> Although one medical school had foundered three years before, Dr. Hugh H. Toland's medical college was organized shortly afterward. In 1866, its museum and library were opened. Books were scarce; it would be two years before the transcontinental railroad would be completed to shrink the distance from coast to coast. So small was the medical college library that it was supported by one-dollar fines for tardiness at faculty meetings, two-dollar fines for non-attendance. Yet, by this time, the library of the Mechanics' Institute held more than 500 volumes.

The medical journal Wooster founded was the only one published for several years. There were seven hospitals in the city under national, municipal, religious, benevolent society and proprietary management. Wooster tells us that 500 physicians practiced in San Francisco at the time of his writing, in a population of approximately 75,000. It would not be until a year later that the San Francisco County Medical Society would be reorganized after it had dissolved five years before over uncompromising disagreement about fee schedules. Four years would go by before the American Medical Association would have its first meeting in the Bay city. A bill in the State legislature to regulate medical practice that had failed in 1865 would not pass until two years later. In this medically primitive San Francisco, a compendium of the current ideas in cardiology might be an asset to any thoughtful practitioner.

The scientific world of 1867 was likewise in ferment.<sup>4</sup> The awaited opening of the Suez Canal was the Sputnik of a century ago. From Glasgow, Joseph Lister had introduced antiseptic surgery. This stirred physicians as deeply as antibiotics did three generations later. The first Listerian laparotomy in San Francisco was performed in the patient's home where, Dr. O. O. Burgess<sup>5</sup> believed, there was less likelihood of infection than in the hospitals. Theodore Billroth was, to use Naunyn's phrase, making the abdomen the surgeon's playground.<sup>4</sup> Rokitsky and Virchow dominated the

pathology of heart disease. Obsessed with the process of inflammation, they declared the cellular reaction around myocardial infarct betokened inflammation, and hence the disease was myocarditis. Since the coronary circulation was disregarded, these arteries were seldom mentioned in autopsy report.<sup>3</sup> The benefit of digitalis in heart failure was denied by Latham, Corrigan, Laennec, Stokes and Walshe.<sup>2</sup> In unsettled times like these, Wooster's sensible compendium in one's pocket or saddle bag could be helpful.

### A Reviewer's Views

It is of interest to know how Wooster's peers considered his book. Seven months after its publication, it was reviewed by one J. H. H.<sup>7</sup> in the esteemed *American Journal of the Medical Sciences*. "His object," stated the reviewer, "has been to present to the profession a book in which the rules for diagnosis and treatment of diseases of the heart and aorta shall be clearly laid down. For the most part, we think, Dr. Wooster has attained his object. . . . The best authorities on diseases of the heart have evidently been freely consulted by our author. . . . To those who have neither time nor inclination to read the systematic treatises on diseases of the heart, this little work will give a very fair idea of the present state of our knowledge of the subject." Interspersed between these quotations are a few criticisms about hasty proofreading, and whether one quotation from Walshe is correct. Ten months later, Wooster<sup>19</sup> in the *Pacific Medical and Surgical Journal* mildly debated the reviewer's criticism, yet admitted "it is not the less a mistake, yet not a grave one." Although this journal in October 1867 had promised "we shall submit it to review in the next number,"<sup>11</sup> its review did not appear.

The first chapter of Dr. Wooster's *Diseases of the Heart* is a brief introduction. It encourages the San Francisco physician of 1867 — "I purpose . . . to show how simple it is for all educated physicians to say positively what portion of the heart is affected in most cases. . . ."

Chapter II, "Anatomical and Physiological Facts Concerning Location of Valves, and Origin of Heart's Sounds" describes the first and second heart sounds, and then ventures into the causation of the sounds. In an Appendix A, he adds material that for all the world sounds like the debate between William Dock and Aldo Luisada this very day — snapping of valves vs. tensing of the valves.

A later footnote says, "I do not venture to say that there is no other element in the causation of the first sound, but the closure of the auriculo-ventricular valves is the only cause of any practical importance." That adult, wealthy, dissipated city men are more liable to heart disease than women, children, peasants, the poor and those of regular habits is no new observation.

### "Erotic Passion" and the Weaker Sex

"Courtesans," Wooster wrote, "rarely have disease of the heart! Excessive indulgence of the erotic passion, is, on the contrary, in men a great aid to the development of endocardial disease, and also of acute rheumatism, which is a conspicuous and very common forerunner of pericarditis."

Although he followed Rokitansky away from the concept of coronary disease that Edward Jenner knew — "Every acute disease of the heart is an inflammation"—he nevertheless went on to recognize that "it is disease of the heart . . . caused by atheromatous deposits, either alone or in company with cartilage and bone, with which we are most concerned." He said then that "we do not, and probably never can know why [calcium] is deposited in the heart at all."

Chapter III is devoted to "Diagnostic Signs of Endocarditis, Pericarditis, and Insufficiency of the Mitral Valve." "When there is a friction sound, persistent or no, there is pericarditis acute or chronic; and the disease is outside the heart." Then he goes on to describe murmur of mitral insufficiency — "the murmur will coincide with part or all of the first sound." He differentiates the radiation of aortic murmurs down the sternum from mitral murmurs that radiate into the axilla. The murmur is caused by "blood being repelled from the left ventricle into the left auricle through the imperfect mitral valve." He distinguished also the systolic murmur of aortic stenosis from the diastolic murmur of aortic regurgitation.

Case I in this chapter was that of a 20-year-old girl who was told by Dr. ——— that, because of a murmur, she had incurable heart disease. Dr. Wooster was impressed by her pallor, "heart sounds distinct and *snappish*, that is, unusually definite. . . . She was assured she was anemic, and had no heart disease and was curable."

Case II was that of a woman with aortic stenosis. Wooster pointed out the path of his diagnostic thought and noted: "no jugular pulse, hence tricuspid not incompetent." He prescribed, after

cupping and leeches, "digitalis occasionally for excessive rapidity of heart beats, . . . large quantities of bitartrate of potassa as a diuretic. . . . The object of the treatment is, in this case, to diminish the labor the heart has to perform, by guarding the integrity of the function of the [other organs], and last, but far from least of all, the nervous system, by preventing mental and moral disturbances. . . ." There follows a discussion of "intermittent pulse" which was then a wastebasket for the arrhythmias. He speaks of "precordial uneasiness in anemic subjects," saying that "there is every reason to believe this pain and the uneasiness are the results of defective nutrition of the heart itself."

### Wooster's Views on Tobacco

Discussing treatment of mitral regurgitation, he said that "tobacco is very injurious to all kinds of heart disease"—as true today as in Wooster's time.

In Case III, the patient was a man with congestive heart failure from aortic and mitral valvular disease who was treated with iron, antimony, and digitalis. Wooster advises that "The passage of iron into the circulation and through the kidneys should be verified by adding gallic acid in urine . . . which if iron be present . . . will instantly become inky. Nothing is more fatal than the theory of treatment which proposes absolute rest in bed, with low vegetable diet for organic diseases of the heart."

Chapter IV is devoted to "Diseases of the Semilunar Valves of the Aorta, Direct and Regurgitant Murmurs—Differential Diagnosis of. Treatment of Disease of the Aortic Valves, and its Complications." An italicized quotation from Brown (one of the authors whose work Wooster had reviewed in preparation for his own), sounds the keynote of the section: "The time and localization at which the murmur is heard mark the lesion." Wooster emphasized that murmurs following the first heart sound are systolic, those following the second sound are diastolic. "All valvular diseases, in fact, all diseases of the circulatory apparatus, are, theoretically, likely to produce dropsy of the extremities. . . . The amount of edema of the extremities will be one of the measures of the degree of incompetency of the aortic or tricuspid mitral valves." (Wooster then refers to the Appendix C, Causes of Dropsy, and there he appears to have an inkling of the role of salt in edema. "Dropsy is caused by something more than mere venous or capillary obstruction," he declares. "The blood must become

deteriorated in albumen before true dropsy can take place. . . . It will be understood that dropsy is not an exudation of inflammation; the dropsical liquid contains no coagulable fibrin, and exudation does. . . . The diminution of albumen and increase of salts and water are rigorously coincident facts."

Wooster, further, noted that "pain in the region of the heart is an exceptional symptom in either mitral or aortic valvular disease."

### Physical Signs in Diagnosis

Wooster constantly emphasizes physical diagnosis. "The hypertrophy of the heart that attends this disease is often very manifest to the naked eye, as well as to percussion. The ribs are seen to be sensibly higher over the left than right side; the heart's impulse is felt over a wider space, and more to the left, and longer. . . . I must not omit the sign pathognomonic of Dr. Corrigan: that is, visible pulses of all the superficial arteries. . . .

"The patient may eat a little at a time. . . . Small meals disturb the circulation much less than large. . . . If dropsy should occur . . . it must be met with purgatives, diuretics, and diaphoretics, that overloaded circulation which is its cause may be relieved as soon as possible; and to assist this purpose, absolute rest should be enjoined, and the heart's action diminished with small doses of digitalis, often repeated, or digitalis alternated with aconitine. . . . Digitalis has been objected to in many diseases of the heart by high authorities (Corrigan, Henderson, Walshe, etc.), and especially in aortic incompetency. . . . The more frequent the heart beats the less opportunity for regurgitation, and hence the less the ventricular engorgement; but digitalis slows the heart beats, and hence allows more time for aortic regurgitation. . . . Now, all this is true, but still is no objection to the guarded use of digitalis. . . . The drug should be given to slow an excited heart . . . but not to reduce it below 80 or 85. . . .

"The weight of the patient must be reduced from time to time by diminished diet, such as lean meat and dried meats, with a little stale bread, in small quantities, without vegetables or liquid food. Even water should be drunk sparingly. By these means the blood may be diminished in quantity . . . and at the same time its quality remain unimpaired. . . . The law applicable here is applicable in every organic disease of the heart. . . . The heart must be aided by diminishing the labor it has to perform,

without diminishing its own proper vigor or functional ability."

Will our current treatises read as sensibly, in 2068, as Wooster's does today?

Of aortic stenosis, Wooster writes, "there is no known pathognomonic signs or signs of aortic constriction. Its existence may be made out with extreme probability, but never with the absolute certainty of mitral or aortic regurgitation. . . . A marked fact . . . is that the murmur is frequently heard in so many places and at such remote distances from its origin."

### "Narrowing of the Aorta"

Under the heading of "Narrowing of the Aorta," Wooster describes what we now know as coarctation of the aorta. He quotes from Latham's description of a patient and from this description of Meckel's case: "The aorta was not more than half the diameter of the pulmonary artery. . . . These were evidently congenital malformations of the aorta."

Wooster then writes of angina pectoris: "Neuralgic pain, of which angina pectoris is undoubtedly an example, depends on some local anemia. . . ."

Sudden death as a complication of aortic insufficiency is stressed. "The patient drops dead without the slightest premonition. . . . The freer the heart is from any other lesion, Walshe says, the more likely is the patient to instant death from aortic regurgitation. The assurance of life is much longer if to the aortic, mitral regurgitation and ventricular hypertrophy be added. . . . Death occurs from syncope. It is a fainting away from which the patient never awakes."

Although we, 100 years after Wooster, think of aortic stenosis rather than aortic insufficiency as the prime cause of syncope and unheralded death, we forget the prevalence of syphilitic heart disease in Wooster's time, and we do not recollect that gummatous involvement of the ostia of the coronary arteries was a common cause of sudden death. Hence, as Wooster reminds us, the involvement of the mitral valve gives assurance of a longer life, because then the infection would be not the lethal spirochete but rheumatic fever.

Chapter V is entitled "Valves of the Pulmonary Artery, Constriction of the Mitral Orifice, Constriction of the Right Auriculo-Ventricular Orifice." Wooster quotes Skoda's declaration that he never observed disease of the pulmonary valve.

He cites Hope's creation of experimental pulmonic regurgitation "in the heart of an ass poisoned by Woorara" (curare). Mention is made of murmurs and thrills from the pulmonary artery compressed by tumor.

## A Murmur at Moot

About constriction of the mitral orifice, Wooster and his British authorities find themselves contrary to American and current teaching. Latham wrote that a mitral diastolic murmur was a clinical curiosity, because the thin-muscle atrium had too feeble a contraction to create a murmur through the stenotic mitral orifice. And Wooster noted that "Markham met with less than a dozen cases in eight or nine years." Austin Flint, the only American author quoted in Wooster's book, says the mitral diastolic murmur "is by no means as rare as has been supposed." Nevertheless, Wooster's writing discloses a clear understanding of the pathophysiology of mitral stenosis. "This affection causes hypertrophy of the left auricle and right ventricle, pulmonary congestion . . . hemoptysis of venous blood frequent . . . breathlessness seen easily induced by over-exertion . . . Skoda's symptom, increased second sound of the pulmonary artery, is here well marked. . . ." Skoda heard the long diastolic murmur; however, Hope described it as "feeble, soft, usually on a lower key than a whispered *who*." Skoda and Corvisart felt the thrill, as did Markham. Hope and Walshe never did feel a thrill in a patient with valvular disease. Wooster tells of a patient in San Francisco in whom "the thrill is indubitable; but it no more resembles the purr of a cat or the hum of a wheel than it does the filing of a saw—but it does accurately simulate the *thrill* felt by placing one's finger on a gum-elastic tube, a few lines in diameter, connected with a hydrant with the water turned on." The frequency of atrial fibrillation is mentioned: "A feeble, irregular, unequal, intermittent pulse."

The diastolic murmur of mitral stenosis was likely not heard by Wooster and his authorities because of the inefficient design of the monaural stethoscope of the period; low pitched sounds were well-nigh inaudible with Laennec's instrument. Also, we must remember that Duroziez did not describe the cadence of sounds and murmurs in mitral stenosis, *fout-ta-tá-rou*, until 1877, ten years after Wooster's book was printed.

Chapter VI is devoted to "Inorganic Murmurs—How Distinguishable from Organic-Diastolic

Inorganic Murmur." In this chapter it is noted that "there are murmurs without valvular impediment, yet not without cause; but this cause is not always an impediment to the circulation." Wooster lists as inorganic murmurs the evanescent ones heard in convalescence from rheumatic endocarditis, after exercise, in children, and in chicken-breast; and he speaks of the cardio-respiratory murmur "in typhus, in cholera, in all exhaustive affections." Walshe is quoted as believing that short diastolic murmurs may be inorganic. Optimistically, Wooster concludes: "There is little doubt that one accustomed to auscultation of the heart would distinguish an inorganic from an organic murmur, in almost every case, by the mere quality, pitch, tone, strength, and duration of the murmur alone."

Chapter VII treats of "Pericarditis and Endocarditis. Endopericarditis—Carditis." "The characteristic sign of endocarditis is an endocardial murmur, systolic in time, occurring suddenly in a person with fever or acute rheumatism, in whom it had never occurred before." Wooster is well aware of rheumatic carditis. "The valves are sometimes rendered incompetent for a few hours or days only, and during this time a murmur of regurgitation—mitral—may be heard at the left apex," (this the Carey Coombs murmur) "or a diastolic murmur may be heard over the third left cartilage and thence down the sternum from incompetency of the aortic valves."

"Pericarditis is not known to be an idiopathic disease." This was long before the entity of idiopathic benign pericarditis was established by Barnes and Burchell in 1942. Wooster recognized that "it is chiefly the result of acute rheumatism," but he knew it could attend the severe infectious diseases, pyemia, pneumonia, and "rarely Bright's disease of the kidneys." Wooster saw it "with scurvy in three instances in the late civil war," and with "hepatic abscess of the left lobe—a case observed by the author at Fort Yuma in 1861, verified by post-mortem examination."

"The chief local symptom of pericarditis is pain (Walshe). . . . The pericardium is peculiarly insensible when inflamed, in Bright's disease. . . . Pericarditis is a much less frequent disease in warm than in cold climates, other things being equal. It is by no means so frequent in San Francisco as in Edinburgh or London." Wooster was probably the first to point out that rheumatic fever is a milder disease in southern areas. "In more than a hundred

cases of rheumatism treated by me in Arizona and Southern California during the years 1862 and 1863," Wooster says, "I saw but one in which I was able to verify that the inflammation had affected the heart." Then follows a case report of "acute endocarditis, apparently idiopathic, with emboli" in a soldier, age 25, who died after four days of illness that presented with cough. At autopsy done five hours after death, "the size of the heart and external aspect normal; no effusion in pericardium . . . nor congested coronary vessels. . . . The right auricle was completely plugged with a semi-organized looking clot. . . . The endocardium presented numerous signs of inflammation, especially about the auricles and valves; left auricle contained no clot; valves were competent. . . .

"The treatment of pericarditis and endocarditis . . . is essentially the same. . . . The diet must be diminished in quantity. . . . Blood may be taken from the arm, to the extent of a pound . . . and this may be followed by five, 10, or 20 leeches to the precordia. . . . The dose of propylamin, providing we are treating rheumatism with propylamin, may be quadrupled immediately. If the heart beats more than 90, half a drop of fluid-extract of digitalis and five drops of McMunn's elixir of opium may be given every hour until the pulse falls to 75 and increases in size and regularity. . . . If life is in imminent jeopardy by the accumulation of fluid in the pericardium, there can be no question of the propriety of tapping near the base of the heart, upper angle of fourth left interspace, and reinjecting a small quantity, of equal parts, tincture of iodine and distilled water, at the temperature of the blood to excite adhesion of the pericardial surfaces. . . . Iodine injections are recommended by Aran. . . . Seton at the precordia [and] mercurial inunctions . . . are seemingly beneficial. . . . Here passive exercise in the open air, and even sea voyages may be advised. . . . The trial of alkaline springs should be made, if possible."

### A Precursive View of Cor Pulmonale

Chapter VIII deals with "Hypertrophy. Dilation." In it Wooster writes, "Obstructions in the lungs would cause hypertrophy of the right sooner than the left ventricle." This is a remarkable statement when one recalls that the concept of cor pulmonale is a product of the twentieth century. Wooster did not do bleeding indiscriminately, and his dietary regimen sounds modern. "A heart which will utterly fail to impel 16 or 17 pounds of

blood—the normal amount—will get along with 14 or 15 pounds with little or no difficulty. It must not be inferred from this, that therefore bleeding to the amount of one or two pounds will answer the purpose. . . . If we wish to abstract a pound of blood from a patient with a dilated heart, we must do so by reducing the patient eight pounds in flesh, by means of low diet, or, in cases of urgent need, by total abstinence from food. . . .

"Dry cups to the heart in cases of extreme palpitation or angina often afford instant and enduring relief. Blood must rarely be taken. . . . The patient must lead a cheerful life, and not be exposed to annoyances and hardships. . . . No violent emotion or passion should be indulged. (Rupture of a dilated heart has occurred *in actu coitus*.) Animal diet is preferable; much drink of any kind, even if it be milk, is to be avoided. . . ."

Chapter IX takes up "Softening, Fatty Metamorphosis or Degeneration of the Heart, Rupture of the Heart. Cases." The author notes that "the diagnosis of softening of the heart is not easy nor absolute. This affection occurs in consequence of adynamic diseases, typhus, typhoid, diphtheria, variola, scarletina, etc." Wooster details the symptoms of softening as "feeble, irregular pulse; much diminished or absent first sound of the heart . . . the extremities presenting a leaden hue. . . . Such a case might be allowed moderate doses of whiskey or brandy, or half an ounce three times daily of a mixture composed of equal parts of cod-liver oil, whiskey, and syrup of wild cherry bark. . . .

"The diagnosis of fatty degeneration . . . is based on the symptoms already mentioned, to which may be added defective memory of recent events. . . . Respiratory forgetfulness is often observed." Is this not a reference to Cheyne-Stokes respiration? That Wooster used the microscope in necropsy is witnessed on page 157, in the description of a heart with fatty degeneration. "The heart was very soft, being easily rubbed to a pulp between the thumb and finger. . . . Examination under the microscope showed abundance of oil globules and amorphous pale muscular substance, but few striated fibrillae."

### Aneurysm of the Sinus of Valsalva

On the next page is his report of the autopsy of a 30-year-old quadroon, "who died suddenly." "The beginning of aorta [the report notes] was atheromatous; the right coronary sinus was converted into an aneurysmal sac the size of a hen's egg." This is a graphic uncognizant description—the first



in the United States—of an aneurysm of the sinus of Valsalva, likely congenital, the first case of which had been described by James Hope<sup>8</sup> in 1839. By 1914, Smith<sup>16</sup> had found only 20 published cases. The first American case was reported 31 years after Wooster's.

Angina pectoris, described as "suffocative breast pang,"<sup>11</sup> is a disease," Wooster wrote, "from which the poor are usually exempt. It attacks about nine males to one female. It rarely occurs before the fortieth year, seldom before the fiftieth. . . . No disease of the heart is more certainly recognizable than angina pectoris." Then follows a page of symptoms, the list and descriptions far inferior to Heberden's. But the pathologic anatomy does not fall into the error of Rokitansky and Virchow. "The coronary arteries," writes Wooster, "are frequently more or less ossified or constricted by atheromatous deposits." Wooster's physiology of angina pectoris follows Latham's—"The pain of angina . . . depends, then, on lack of supply of red blood to the heart itself, or upon impaired nutrition or irritation of that branch of the vagus which supplies the heart."

#### "Cooling It" for Angina a Century Ago

"But the most important part of the treatment of a subject of angina," Wooster continues, "is that directed to the postponing of the recurrence of the attack, which is sure to come again. . . . All emotional influences must be avoided. The temper must be controlled. The passions indulged with the greatest moderation. The natural calls of the body obeyed with deliberation. . . . There must be no violent or forced work, or exercise, or amusement." Dr. Wooster is not far afield for a century ago.

Chapter X is about "Thoracic Aneurysm: Diagnosis and Treatment. Cyanosis and Atelectasis." The discussion of signs and symptoms in consequence of the location of the aneurysm could fit in any present-day primer of physical diagnosis. When syphilis was rampant, even the pulmonary artery was sometimes, though rarely, a site of aneurysm. Wooster writes, "The disease is incurable . . . tracheotomy may temporarily prolong life when laryngeal symptoms threaten immediate suffocation."

Wooster's experience with and reading about cyanotic heart disease expose his inexperience. "Cyanosis is generally the result of a congenital defect in the heart," he begins. But then he lists

open foramen ovale, patent ductus arteriosus, ventricular septal defect and pulmonic stenosis. Sensibly he admits, "but really the consideration of this disease hardly comes within my theme—it belongs to works on malformations of the heart, among which that of Dr. Peacock is excellent." Sound advice, applicable even today.

Chapter XI is a recapitulation headed "General Rules for Diagnosis of Diseases of the Heart." The second half of this chapter summarizes "General Principles of Treatment of Diseases of the Heart." The opening statement, partly italicized, is as pertinent now as a century ago. "The first and most important principle to be kept in view in treating a diseased heart is to diminish the labor it has to perform."

Chapter XII summarizes "General Reflections As To Prognosis in Organic Diseases of the Heart." In these pages, Wooster reminds the reader that "Insufficiency of the mitral valve, while it is the most common, is fortunately the least fatal . . . and the most controllable by systematic treatment. Mitral constriction if slight is not incompatible with tolerable health and long life; but when the constriction is considerable, its consequences follow in more rapid succession. Here the left heart remains unaffected, or may become atrophied for lack of work. . . . The blood, not being able to flow into the left ventricle in normal volume, accumulates in the left auricle, which hypertrophies; . . . part of its contractile force is expended backwards on the pulmonary veins . . . and so back to the right heart. . . .

"Disease of the aortic valves . . . is more lethal in tendency; and indeed less controllable by treatment. . . . Aortic obstruction . . . is more commonly met in middle or advanced age . . . and more frequently in males . . . ; while females are more liable to mitral disease than to any other affection of the heart. . . . The narrowing of the aortic orifice to one-fifth its normal condition, is not incompatible with the continuation of life and the enjoyment of unsuspected health. . . .

"Acute pericarditis is seldom fatal. Acute endocarditis is somewhat more frequently fatal, but not more so than pneumonia. It almost always leaves disease of the valves. . . ."

Until the advent of cardiac surgery and the use of artificial or substitute valves, Dr. Wooster's words could be read with nearly as much profit as a century ago.

### Addendum

While this paper was in preparation, Dr. Saul Jarcho published in the *American Journal of Cardiology* (16:881, 1965) "Cardiology After The Gold Rush (Wooster, 1867)," a brief discussion of the book. "Wooster found it necessary to define systole and diastole," Dr. Jarcho noted, "a fact which suggests that some California practitioners at this time were a little less than erudite."

"Presumably," he concludes, "this condition has been corrected."

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